



IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In Re Application of:

Daphna Havkin-Frenkel, *et al.*

Confirmation No.: 7483

Application No.: 10/087,714

Group Art Unit: 1638

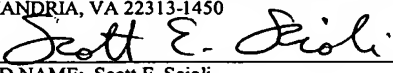
Filing Date: February 28, 2002

Examiner: Cynthia E. Collins

For: Vanillin Biosynthetic Pathway Enzymes From *Vanilla planifolia*

DATE OF DEPOSIT: September 7, 2006

I HEREBY CERTIFY THAT THIS PAPER IS BEING DEPOSITED WITH THE UNITED STATES POSTAL SERVICE AS FIRST CLASS MAIL, POSTAGE PREPAID, ON THE DATE INDICATED ABOVE AND IS ADDRESSED TO THE COMMISSIONER FOR PATENTS, P.O. BOX 1450 ALEXANDRIA, VA 22313-1450


TYPED NAME: Scott E. Scioli
REGISTRATION NO.: 47,930

☒ MS Amendment ☐ MS AF

Commissioner for Patents

P. O. Box 1450

Alexandria, VA 22313-1450

REPLY TRANSMITTAL LETTER

Dear Sir:

1. A Reply Responsive to the Notice of Non-Compliant Amendment (37 CFR 1.121) dated August 11, 2006 (*includes revised pages 3 and 4 of Amendment filed May 24, 2006*).

STATUS

2. Applicant is

☐ a small entity. A statement:

☐ is attached.

☐ was already filed.

☒ other than a small entity.

EXTENSION OF TIME

3. The proceedings herein are for a patent application and the provisions of 37 C.F.R. 1.136 apply.

(a) ☐ Applicant petitions for an extension of time under 37 C.F.R. 1.13 (fees: 37 C.F.R. 1.17(a)(1)-(4)) for the total number of months checked below:

	Extension (months)	Fee for other than small entity	Fee for small entity
<input type="checkbox"/>	one month	\$ 120.00	\$ 60.00
<input type="checkbox"/>	two months	\$ 450.00	\$ 225.00
<input type="checkbox"/>	three months	\$1,020.00	\$ 510.00
<input type="checkbox"/>	four months	\$1,590.00	\$ 795.00
<input type="checkbox"/>	five months	\$2,160.00	\$1,080.00

Fee: \$ _____

If an additional extension of time is required, please consider this a petition therefor.

☐ An extension for _____ months has already been secured. The fee paid therefor of \$ _____ is deducted from the total fee due for the total months of extension now requested.

Extension fee due with this request \$ _____

OR

(b) ☒ Applicant believes that no extension of time is required. However, this conditional petition is being made to provide for the possibility that applicant has inadvertently overlooked the need for a petition for extension of time.

FEE FOR CLAIMS

4. The fee for claims (37 C.F.R. 1.16(b)-(d)) has been calculated as shown below:

SMALL ENTITY						OTHER THAN SMALL ENTITY	
Claims Remaining After Amendment	Highest No. Previously Paid For	Present Extra	Rate	Addit. Fee	OR	Rate	Addit. Fee
Total 15	Minus 31	= 0	x \$25 =	\$		x \$50 =	\$0
Indep. 3	Minus 0	= 0	x \$100 =	\$		x \$200 =	\$0
<input type="checkbox"/> First Presentation of Multiple Dependent Claim			+ \$180 =	\$		+ \$360 =	\$0
				Total Additional Fee	\$	OR	Total Additional Fee
							\$0

(c) ☒ No additional fee for claims is required.

OR

(d) ☐ Total additional fee for claims required \$ _____.

FEE PAYMENT

5. ☐ Attached is a check in the sum of \$ _____.
☐ Charge Account No. 50-0573 the sum of \$ _____.
A duplicate of this transmittal is attached.

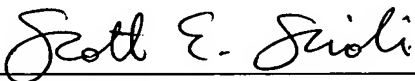
FEE DEFICIENCY

6. ☒ If any additional extension and/or fee is required, the Commissioner is hereby authorized to charge Account No. 50-0573.

AND/OR

- ☒ If any additional fee for claims is required, the Commissioner is hereby authorized to charge Account No. 50-0573.

Date: September 7, 2006



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26-29. (Canceled)

30. (Withdrawn) A method for improving vanillin production and accumulation in a *Vanilla planifolia* cell or tissue culture, which comprises:

- a) genetically engineering the *Vanilla planifolia* to overproduce one or more enzymes associated with one or more steps of vanillin biosynthesis in the *Vanilla planifolia*, the steps selected from the group consisting of: chain shortening of p-coumaric acid to p-hydroxybenzaldehyde; chain shortening of ferulic acid to vanillin; hydroxylation of p-hydroxybenzyl alcohol to 3,4-dihydroxybenzyl alcohol or aldehyde; and methylation of 3,4-dihydroxybenzaldehyde to vanillin, thereby resulting in the improved vanillin production; and
- b) inhibiting production or activity of vanillyl alcohol dehydrogenase in cells of the culture, thereby resulting in the improved vanillin accumulation.

31. (Withdrawn) A *Vanilla planifolia* cell or tissue culture produced by the method of claim 30.

32. (Withdrawn - Currently Amended) A method of expressing an enzyme having ~~4-hydroxybenzaldehyde~~ hydroxybenzaldehyde synthase activity in a cell of a plant comprising the steps of

- a) providing a plant cell;
- b) providing a polynucleic acid encoding a chain shortening enzyme having an amino acid sequence of SEQ ID NO:2; and
- c) genetically manipulating the plant cell to express the encoded enzyme.

33. (Withdrawn) The method of claim 32 wherein the plant cell is from *Arabidopsis thaliana*, *Vanilla planifolia* or *Agrostis palustris*.

34. (Withdrawn) The method of claim 33 wherein the plant cell is a *Vanilla planifolia* cell from a whole plant or from a tissue culture.

35. (Withdrawn) The method of claim 32 further comprising the additional step of regenerating the cell into a whole plant.

36 (Withdrawn) A genetically engineered *Vanilla planifolia* plant produced by the method of claim 35.